

REMARKS

Claims 1-13 remain pending in this application.

Applicants appreciate the Examiner's explicit acknowledgment of the claim for foreign priority and receipt of certified copies, in addition to the explicit acknowledgment that documents submitted in the IDSs filed September 1, 2006 and April 17, 2008, have been considered.

Claim 1 has been amended to clarify what applicants regard as their invention by pointing out that the recited concentrations are based on the polyisocyanate composition and that the polyol has a number average molecular weight of less than 300. Support for these amendments can be found in the original specification at, for example, page 10, lines 16-26 and page 12, lines 18-22. Claim 7 has been amended to make reference to "A block polyisocyanate composition." Claim 9 has been amended to provide proper antecedent support for the polyisocyanate composition of claim 1. Accordingly, no new matter has been introduced by these amendments.

Claims 1-13 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. With respect to claim 1, the Office states that it is not clear whether the recited mass percents are based on the weight of the composition or some other entity. Claim 1 has been amended to point out that the recited mass percents are based on the polyisocyanate composition. With respect to claim 9, the Office correctly pointed out that the "block polyisocyanate composition" lacked antecedent basis from claim 1. Claim 9 has been amended to provide proper antecedent basis. Accordingly, these rejections should be withdrawn.

Claims 1-13 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Asahina et al. (U.S. Patent No. 6,111,048) in view of Slack et al. (U.S. Patent No. 4,810,820) and Bernard et al. (U.S. 2003/0096909 A1). The Office argues that Asahina et al. teaches polyisocyanates, blocked polyisocyanates, and coating compositions derived by reacting a polyisocyanate with a polyol that meet the features of the present claims except for the claimed ratio of aliphatic diisocyanate to alicyclic diisocyanate and the claimed glass transition temperature.

In addition to the differences noted by the Examiner, the claims have been amended to recite that the polyols have a molecular weight of less than 300. Support for this amendment can be found, for example, at page 10, lines 16-18, where it is indicated that the molecular weight should preferably be not more than 300. Applicants have limited the recited polyol to have a number average molecular weight less than 300 to more clearly distinguish the claimed invention from the polyols described in Asahina et al. (col. 7, lines 39-42; col. 9, lines 25-27; col. 15, lines 46-49; claim 8) which require a polyol having a number average molecular weight of at least 300, and preferably 500 to 5000. Clearly Asahina et al. teaches away from the use of a polyol having a number average molecular weight of less than 300. In addition, neither Slack et al. nor Bernard et al. contain any suggestion or reason to use a polyol having a number average molecular weight of less than 300. Accordingly, all claims are considered patentable over the cited references for at least this reason.

Slack et al. is cited as disclosing the use of diisocyanate blends in the production of polyisocyanates to produce coatings. Bernard et al. is said to disclose (paragraph 0018) that blends of hexamethylene diisocyanate (HDI) derivatives and isophorone

diisocyanate (IPDI) derivatives are used to control the rate of surface drying and further disclose a relationship between surface hardeners and glass transition temperature. The Office then concludes that the recited ratio and temperature are result effective variables that would be readily determined by a person skilled in the art as a matter of determining optimum values. Applicants disagree with this conclusion for the reasons discussed below.

Slack et al. discloses a polyisocyanate having an allophanate and isocyanate group, but does not disclose or suggest the use of any polyols. Bernard et al. describes that an isocyanurate oligomer may be combined with other oligomers of isophorone diisocyanate to produce a polyisocyanate mixture (paragraph 0018). In sharp contrast, however, the claimed polyisocyanate composition is not the mixture of oligomers taught in Bernard et al. In the present invention, at least one of an aliphatic diisocyanate compound, at least one alicyclic diisocyanate compound and at least one polyol are reacted, and then subjected to an isocyanate reaction so as to obtain the oligomeric polyisocyanate composition. See the production method as explained in the specification at, for example, paragraph 0025.

The present specification, particularly the Examples and Comparative Examples, clarifies the difference between the polyisocyanate mixture of HDI oligomer and IPDI oligomer and the polyisocyanate composition of the present invention. Example 8 and Comparative Example 9 are compared with each other as follows:

Table

	HDI/IPDI (weight ratio)	TG (°C)	Gel fraction
Ex. 8	79/21	89	O
Com. Ex. 9	8/2 (mixing)	79	X

When the weight ratio of HDI oligomer and IPDI oligomer is set to be the same as the weight ratio of HDI and IPDI used for the polyisocyanate composition, surprisingly, it has been found that the Tg of the polyisocyanate composition of the present invention is higher than the polyisocyanate mixture. This unexpected result would not have been foreseen by a person skilled in the art from Bernard. The Examiner set forth that Bernard on paragraph (0018) discloses the relationship between the surface hardness and Tg. However, the higher Tg provided by the present invention would not have been predictable based on the cited references.

In addition to the above unexpected result, the gel fraction of the present invention is much more excellent than the polyisocyanate mixture of Comparative Example 9.

For all the reasons discussed above, since the combination of Asahina et al., Slack et al. and Bernard et al. do not establish a prima facie case of obviousness of the claimed invention, this rejection should be withdrawn.

Prompt and favorable reconsideration is requested.

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account 06-0916.

Respectfully submitted,

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Dated: December 23, 2009

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